THE CORRELATION BETWEEN PHONOLOGICAL AWARENESS AND WORD LEARNING[1]

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Abstract

This is a preliminary study to investigate the possible relationship between phonological awareness and word learning. The subjects of this study were 18 elementary students in the second grade. The subjects were first given three phonological awareness tests to measure their level of phonological awareness. Based on the results of the phonological awareness tests, the subjects were divided into the high and low phonological awareness groups. Afterwards, the subjects in both groups were taught 10 new words, followed by a vocabulary test to examine their ability in learning the new words. The results of the vocabulary test showed that the high phonological awareness group performed slightly better than the low phonological awareness group. This finding supports the assumption that L2 learners' ability to learn L2 vocabularies is affected by their phonological awareness.

Keyword: Phonological Awareness, Word Learning

INTRODUCTION

The knowledge of vocabulary is crucial in second language (L2) learning. As pointed out by Rupley et al. (1998/1999:39), "vocabulary is the glue that holds stories, ideas and content together." Sufficient vocabulary knowledge enables L2 learners to produce comprehensible language and comprehend oral or written language well. In addition, L2 learners with adequate vocabulary are able to do self-learning and develop their knowledge of the target language outside classrooms; hence, it can boost the learning process. Therefore, it is very important for L2 learners to learn as many L2 vocabularies as possible from early on.

Despite the importance of vocabulary knowledge, many L2 learners have trouble learning the vocabularies of the target language. Some learners complain that they have problem in memorizing the new words. Some others have a difficulty in comprehending the meaning of the learned words or choosing the right words to convey their thoughts.

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According to Rahimi and Sahragard (2008), there are several factors that make L2 vocabulary difficult to learn. The first factor is that L2 learners may misunderstand the concept of a word. For instance, many Indonesian L2 learners misinterpret the noun *implication* as 'consequence' instead of 'indirect indication'. The second factor is that L2 learners tend to learn new words by rote learning, instead of meaningful learning; therefore, they forget them easily (drawing on Ausubel, 1968, as cited in Brown, 2000). Rahimi and Sahragard (2008) state that L2 learners will not forget newly learned words easily if they learn them meaningfully. Another factor that contributes to the problem of vocabulary learning is the fact that L2 learners often only check the first meaning that they can find in the dictionary when they encounter a new word. This habit can be misleading because the first meaning listed in the dictionary does not always the appropriate interpretation of the word in a given context. The next two factors that inhibit L2 learners from learning vocabulary are the lack of sufficient input and the lack of output. As pointed out by Rahimi and Sahragard (2008), L2 learners generally lack multiple exposures, which is crucial for incidental learning of vocabulary. In addition, they also lack the opportunities for output which causes them to easily forget newly learned words (drawing on Swain and Lapkin, 1995, as cited in Brown, 2000). The last factor that makes learning L2 vocabulary difficult is the learners' memory capacity. Successful L2 learners can memorize faster and remember more than the unsuccessful ones.

The present study focuses on the last factor listed above, i.e. learners' memory. The authors would like to examine if learners' phonological awareness has some effect on their memory in learning new words. The assumption is that learners with high phonological awareness can memorize new words faster that those with low phonological awareness. The authors will discuss phonological awareness and how it affects the process of learning new words in detail in the following sections.

PHONOLOGICAL AWARENESS

In the literature, *phonological awareness* from *phonemic awareness* are two terms that are often confused. Phonological awareness refers to the "awareness of the phonological segments in spoken words" (Blachman, 2000:483; see also Munro, 1998). Phonemic awareness, which is an aspect of phonological awareness, refers to "knowledge of individual speech sounds" (Munro, 1998:1). In line with Engen and Høien (2002:614), this paper prefers to use the term *phonological awareness* as it is a broader notion that includes the ability to identify individual sounds of a word and to "segment words at the levels of syllables, onsets and rimes, and phonemes."

As pointed out by Munro (1998), phonological awareness enables one to detect sounds in oral language. For instance, upon hearing the word *preacher*, a person with good phonological awareness is able to segment the word into syllables, i.e. [pri] and [tʃ ə r], or sound, i.e., [p, r, l, tʃ , ə , r], and able to identify the consonant cluster in the beginning, i.e. [pr], and also the final consonant, i.e. [r]. In contrast, it is difficult for people with poor phonological skill to analyze sounds in spoken words and the order in which the sounds occur. As the result, they may not be able to tell what sound is at the beginning of the word *cake* or where the position of the sound [ej] is in the word.

Various studies have shown that phonological awareness correlates positively with reading skill. Blachman et al. (1999, drawing on Ball et al., 1991; Blachman et al., 1994; Bradley et al., 1983; Byrne et al., 1991, 1993, 1995; Castle et al., 1994; Lie, 1991; Lundberg et al., 1988; and O'Connor et al., 1996) state that training young children's phonological skill can improve their reading skill. Furthermore, as mentioned by Engen and Høien (2002, drawing on Blachman 1984; Bradley et al., 1983; Lundberg et al. 1980), phonological ability is the important factor in predicting reading performance in young children.

To account for the relation between phonological awareness and reading skills, Munro (1998) argues that it is phonological knowledge—which includes the knowledge of sound patterns—that enables one to link letter clusters with the knowledge of how to pronounce words. Munro further explains that the process of learning letter clusters consists of three steps: first, recognizing the written form of the letter clusters. The second step is breaking up the spoken form of the words into smaller sounds and then linking each sound to its written form. The third step is transferring the knowledge of "letter cluster-sound matches in one word to the same letter cluster-sound matches in other words." For example, a child who can read the word *dry* will be able to read the word *cry* or *try* if he can detach the sound [aj] from the spoken form of *dry*. According to Munro, people who have problem with their phonological knowledge cannot perform the above steps well. Subsequently, they have difficulties in learning to read because, when they read, they look at individual letters rather than groups of letters at a time. They also cannot use what they know about some words to read others. Munro (1998) further states that problems with phonological knowledge can also affect people's ability to remember verbal information for a short period.

VOCABULARY LEARNING

Word learning is a complex process. According to Carey and Bartlett (1978), learning new words involves various processes, such as: creating a new lexical entry for the newly learned word, identifying its syntactic subcategorization, and relating it to other words in the same lexical domain. Word learning also involves mapping a form (i.e. a word) onto a meaning or concept. As pointed out by Preissler and Carey (2005), in various studies, it has been observed that children can learn new words by mapping the newly heard words onto unnamed entities. For instance, if a child was shown two objects—one was a familiar object, i.e. a bucket, and the other one is unfamiliar, i.e. a spatula—and then asked to point to a spatula, the child would automatically point to the spatula although he had never heard the word *spatula* nor seen the object.

Before children are able to read, they learn words by linking sounds to meanings. As asserted by Hirsh-Pasek et al (1996), after young children can segment the stream of sounds they hear in the input into words, phrases, and clauses, they begin to map the language they hear onto objects, actions, and events by paying attention to the cues in the social context, which are in the form of eye-gazing and/or pointing gesture. This assertion implies that sensitivity to speech sounds plays an important role in word learning. Another reason why sensitivity to speech sounds is important in word learning is that knowing a word includes knowing how it is pronounced and spelled (Nation, 2005).

The assumption that phonological awareness affects word learning is supported by the results of the experiment conducted by Hu and Schuele (2005), which showed that Chinese children with high phonological awareness could learn native and non-native sounding novel words more accurately than children with low phonological awareness. To account for this finding, Hu and Schuele argue that learners with low phonological awareness have problem in constructing new phonological representation for new words.

The present study is another preliminary research to investigate the effect of phonological awareness on word learning. The authors would like to investigate if young L2 learners with good phonological awareness could learn English vocabulary better than those with poor phonological awareness. The vocabularies learned in this study were restricted to concrete nouns. Furthermore, the phonological awareness tests employed to examine subjects' level of phonological awareness in this study were *counting number of syllables in words*, *identifying the initial sounds/onset of words*, and *identifying the ending sounds/rime of words.* The research methodology and findings of this study are discussed in the following sections.

RESEARCH METHODOLOGY

This study was conducted in three stages. The first stage was the phonological awareness tests which consisted of three tests: the syllable detection test, the onset detection test, and the rime detection test. The phonological awareness test was intended to examine the subjects' level of phonological awareness. The second stage was the vocabulary lesson, which was immediately followed by the third stage which was the vocabulary test.

Subjects

The subjects of this study were eighteen second grade students of a regular elementary school in West Jakarta, ranging in age from 6.5 to 7.5 years old. These students were chosen to become the subjects because they had just started to learn English in the first grade; therefore, they had limited knowledge of English words. Yet, they were old enough to follow instructions and able to write.

Collection and Analysis Procedure

To measure the subjects' phonological awareness level, they were given three phonological awareness tests, which were the syllable detection test, the onset detection test, and the rhyme detection test. These three tests were adapted from the tests used in the study conducted by Widjaja and Winskel (2004). The **onset detection test** was for examining subjects' ability to identify the initial sound or onset. In this test, subjects were asked to listen to a group of words and then identify the word with different onset from the rest of the words. For instance, in the following group of words: *marah malu baru,* the word with different onset was *baru.* The **rhyme detection test** was to check whether subjects were aware of the ending sound or rhyme. In this test, subjects were asked to identify the word with different rhyme. For instance, in the following group of words: *pisau hijau hati,* the word with different rhyme *hati.* The **syllable detection test** was for testing subjects' ability to identify syllables in words. In this test, subjects were asked to count the number of the syllables in a given word. For instance, the word *gula* had two syllables, *penggaris* three syllables, and *matahari* four syllables. Similarly to the tests in Widjaja and Winskel (2004), all test items in the phonological awareness tests were in Indonesian. Phonological awareness tests had to be conducted in the language that participants were familiar with since their purpose was to measure one's phonological awareness level.

To analyze the results the phonological awareness tests, the authors first scored the subjects' answers. In the Syllable Detection Test, which

consisted of 20 test items, each correct answer got 5 points. Hence, the total score if all answers were correct in this test was 100. Both the Onset Detection Test and Rime Detection Test consisted of 10 test items. In both tests, each correct answer got 10 points. Hence, the total score if all answers were correct in these two tests were 100.

Based on the scores of subjects' phonological awareness tests, subjects were divided into two groups: high phonological awareness group and low phonological awareness group. Subjects were considered to have a high phonological awareness level only if the scores of all phonological awareness tests were above 70. This means that a subject who got a score below 70 in one of his phonological awareness tests were still considered as having a low phonological awareness, even though the scores of the other two phonological awareness tests were above 70.

After conducting the phonological awareness tests, the authors gave a vocabulary lesson. Ten concrete nouns were taught in the vocabulary lesson, which were: *knob, nest, stool, caldron, crescent, mussel, shovel, centipede, marmalade,* and *porcupine*. These words were chosen under the assumption that the subjects of this study were not familiar with the aforementioned words as they were rarely used in daily conversation.

During the lesson, the authors introduced each of the word by first showing the picture of the object depicting a given word followed by mentioning the name of the object out loud. After introducing all the words, the authors repeat the process. However, in the second round, subjects were asked to repeat after the authors read each word. Then, the authors would write down the word on the blackboard, mentioned the word again, and asked subjects to repeat again. Afterwards, the authors asked the subjects one by one randomly to mention the name of the object depicted on a given picture to check. This was to check the subjects' understanding of the newly learned words. Finally, the authors showed the ten pictures and mentioned the name of the objects one by one again three times. The vocabulary lesson lasted for more or less twenty minutes.

After giving the vocabulary lesson, the authors gave a vocabulary test. The words tested in the test were the same as the ones used in the vocabulary lesson. In the test, the ten pictures were numbered and then put on the white board randomly. Afterwards, the authors mentioned the names of the objects one by one randomly and then asked subjects to write down the number of the picture depicting the given object. The vocabulary test lasted for more or less 10 minutes.

The vocabulary test consisted of 10 test items. Each correct answer got 10 points; subsequently, the total score if all answers were correct in this test were 100. After counting the subjects' scores in the vocabulary test, the authors used Independent T-Test to evaluate if the difference between the

scores of the vocabulary test of the high phonological awareness group and the low phonological awareness group was significant or not. The Independent T-Test was measured by using SPSS.

FINDINGS

The results of the phonological awareness tests and the vocabulary test are summarized in Table 1. As shown in Table 1, 10 subjects were considered to have high phonological awareness because they got more than 70 in all the three phonological awareness tests. The other 8 subjects were in the low phonological awareness group because they got lower than 70 in one or more phonological awareness tests.

TABLE 2
Results of Phonological Awareness Tests and Vocabulary Test

No.	Names	Syllable Detection	Onset Detection	Rime Detection	Information	Vocabulary Test
1	Subject 1	100	100	100	High Phonological Awareness group	100
2	Subject 2	100	90	100		100
3	Subject 3	100	90	90		100
4	Subject 4	85	100	100		100
5	Subject 5	85	100	100		100
6	Subject 6	100	100	80		80
7	Subject 7	100	90	100		60
8	Subject 8	85	90	80		50
9	Subject 9	95	80	80		40
10	Subject 10	100	90	80		30
11	Subject 11	5	70	100	Low Phonological Awareness group	100
12	Subject 12	5	100	100		100
13	Subject 13	0	100	100		100
14	Subject 14	0	100	90		70
15	Subject 15	95	100	60		60
16	Subject 16	100	60	80		60
17	Subject 17	80	50	70		20
18	Subject 18	50	60	70		20

The result of the vocabulary test reveals that there was a slight difference in the performance of the high and the low phonological awareness group in vocabulary learning. As shown in Table 2, in the high phonological awareness group, 6 out of 10 subjects got above 70 with the following details: 5 subjects got 100 and 1 subject got 80. The scores of the other four subjects in the high phonological awareness group were between 30 and 60. In the low phonological awareness group, 4 out of 8 subjects got 70 and above with the following details: 3 subjects got 100 and 1 subject got

70. The scores of the other four subjects in the low phonological awareness group were as follows: two subjects got 60 and the other two subjects got 20.

That the high phonological awareness group performed slightly better than the low phonological awareness group was also reflected in the mean scores of the vocabulary test of the two groups. As shown in Table 3, the mean score of the high phonological awareness group (n = 76) was higher than the mean score of the low phonological awareness group (n = 66.25). However, as shown in Table 4, this difference was not significant (F = 0.044, $\alpha = 0.512$).

TABLE 3
Mean Score of High and Low Phonological Awareness Groups

Phonological awareness level	N	Mean	Std. Deviation	Std. Error
High Phonological Awareness	10	76.00	28.363	8.969
Low Phonological Awareness	8	66.25	33.354	11.792

TABLE 4
Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
TEST	Equal variances assumed	.044	.836	.671	16	.512	9.750	14.537	-21.067	40.567
	Equal variances not assumed			.658	13.839	.521	9.750	14.816	-22.061	41.561

DISCUSSION

Corresponding to the results of Hu and Schuele's (2005) experiment, in the present study, the high phonological awareness group outperformed the low phonological awareness group in the vocabulary test. This finding indicates that young L2 learners with high phonological awareness can learn vocabulary better than L2 learners with low phonological awareness; hence, it supports the assumption that phonological awareness affects the process of word learning. This finding is expected, given that the process of word

learning involves mapping linguistic input, mainly in the form of speech sounds, to meanings (Hirsh-Pasek et al., 1996)

To account for the fact that the difference in the mean score of the high and low phonological awareness groups was not significant, the authors would like to point out that the number of the subjects of this study was very small (i.e. 18 subjects in total); accordingly, it is impossible to find the significance of the difference between the two groups. The authors acknowledge the limited number of subjects as a weakness of this study.

One may also wonder whether the fact that there were three subjects in the high phonological awareness group who got lower than 60 in the vocabulary test indicates that not all learners with a high phonological awareness level can learn vocabulary fast and easily. While it is a possible explanation, it is also possible that the three subjects got low scores because lost their attention during the treatment or did not do the vocabulary test seriously. Correspondingly, the fact that four subjects in the low phonological awareness group could get higher than 70 in the vocabulary test may indicate that learners with low phonological awareness level did not have problem in learning vocabulary or the four subjects did not do the phonological awareness tests seriously. These problems occurred because the subjects of these study were quite young (i.e. ranging from 6.5 to 7.5 years old). The authors acknowledged these problems as another weakness of the present study.

Another weakness of the present study was in the number of the phonological awareness tests, which was only three. In other studies, subjects' phonological awareness level was measured by more than three phonological awareness tests (i.e., there were 4 tests in Engen and Høien (2002) and 8 tests in Widjaja & Winskel (2004)). It is possible that the number of the phonological awareness tests used in this study was not enough to measure the subjects' phonological awareness level accurately.

CONCLUSION

The present study is intended to investigate if phonological awareness correlates positively with word learning. The results of the experiment conducted in this study showed that subjects with high phonological awareness performed slightly better than subjects with low phonological awareness in the vocabulary test. The authors assume that this finding supports the assumption that L2 learners' phonological awareness level affects their ability to learn vocabularies.

The results of the present study contribute to the field of foreign language teaching with an insight of the effect of phonological awareness on word learning. Subsequently, it is important for language teachers to

develop their students' phonological awareness skills in order to enhance their ability to learn vocabularies. In line with the fact that the outcome of the present study was potentially affected by the aforementioned three weaknesses, the authors expect that further studies on this issue will be undertaken in the future, in which there will be a much larger number of participants and more phonological awareness tests used to measure the subjects' phonological awareness level.

NOTE:

1. This article is a revised vrsion of the scientific writing of the first author which was submitted for the partial fulfillment of the requirement of the Bachelor degree in Education from Atma Jaya Catholic University of Indonesia.

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